Previous WP Reviewed Memo Feb 9, 20

# REGION 3: THE MID-ATLANTIC STATES

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Environmental Science Center
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| DATE: | January 3, 2012 |
| SUBJECT: | Work Plan for Residential sampling Dimock Groundwater Pennsylvania [DCN 120024] |
| FROM: | Michael H. Mahoney, Chemist<br>OASQA/QAT (3EA22) |
| THROUGH: | Fred Foreman, Chief, Technical Services Branch<br>OASQA (3EA22) |
| TO: | Richard Rupert, OSC |

A Work Plan, prepared by TechLaw was reviewed against the appropriate guidance documents.[1] Recommendations for additional discussion and clarification have been provided for your review. It is recommended that the following concerns be addressed and the plan re-submitted for review before the plan is approved.

MAJOR CONCERNS:

1) The methods of analysis and their preparation steps need to be specified for this sampling event. The CAS numbers and detection levels need to be listed for all analytes. The detection levels are determined by the decision thresholds, (see #4 below) and are specific for this project. Those detection levels will determine if the analytical method is capable of achieving the required decision thresholds. If the decision threshold is changed the specific analytical method may need to be changed also to achieve the required detection level. This Work Plan and its associated analytical suite cannot be fully evaluated until those decision thresholds are established.

2) The sampling chain is specified in the text but does not mention any radiological testing as indicated in the analytical summary.

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1 The review was based on guidance provided in " Guidance on Systematic Planning using the Data Quality Objectives Process (**QA/G-4**) EPA/240/B-06/001 February 2006, "EPA Requirements for Quality Assurance Project Plans" (QA/G5) EPA/240/R-02/009 December 2002, "Guidance on Environmental Data Verification and Data Validation", Re-issued January 2008 (EPA QA/G-8), "Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA 540/R-99/008 (USEPA, 1999), "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", EPA 540/R-034/004 (USEPA, 2004c), "Guidance for Data Quality Assessment: Practical Methods for Data Analysis" (QA/G9, EPA/240/B-06/003 February 2006, "Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis," April 1993, and "Region III Modifications to National Functional Guidelines for Organic Data Review Multi-media, Multi-concentration (OLMO1.0-OLMO1.9) September 1994.


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3) The radiological testing of these samples is undoubtedly warranted, but needs some justification in the text. For example: the manner in which the Delta Carbon 13 and Delta Deuterium count will be utilized should be discussed in the text.
4) A decision threshold is necessary before sampling begins. The decision threshold will determine the applicability of the proposed analytical methods (see #1 above) and their ability to achieve the necessary sensitivity for this sampling event. As part of the planning process, the sampling event should have its sampling goals delineated in action statements. Usually these are best formulated in "If...Then" statements. For example: "If compound X is found below the RBC threshold Y, then no further action is contemplated. If it is above the threshold, then remediation options will be considered and implemented as appropriate." However, before the language structure is articulated, a clear logical process of the proposed actions for this site needs to be in place. In this case, it would have been logical to sample pre-drilling and post-drilling to demonstrate an impact. There are two alternatives at this time: 1) Establish actual numeric levels for each analytical parameter. This will lead to a statement: If the value of these parameters exceeds the established threshold, then we will consider the well to have been impacted and will evaluate further studies or remediation. 2) Alternatively, if it is possible to find an area which has the same geological formation and aquifer which has not been impacted by any drilling/mining process, then use samples obtained there as a background for comparison. In the latter scenario any marked increase in the analytes would be considered an impact. A hydrologist should be consulted to determine the expected maximum allowable concentration before positives could be considered an observable impact.

5) It is recommended that Conductivity be added to the analytical suite for all sample locations as it has been proven to be an excellent indicator of impacts due to fracing process.

CONCERNS:

1) The timeline for turnaround of the samples: sampling in the field, shipping, analysis, data validation through to the final report is very challenging for 70 samples in 21 days. To produce results this fast will need to be justified, and it will incur additional costs. Please contact Colleen Walling to assist in the Data Validation. Please contact our sample brokerage group through Fred Foreman to assist in placing as many of these samples as possible for fast turnaround.

2) Whenever a mass spectral analysis is requested using SW-846 methods, such as 8270C and 8260B, the laboratory should submit a Tentatively Identified Compound (TIC) list with each analysis. The TIC analysis can identify unknown and unexpected compounds at all stages of investigation and needs to be requested from the laboratory before samples are submitted.

The comments below are provided for consideration and inclusion in future documents. As the comments below will not adversely affect the overall quality of the data generated as part of the planned sampling event, the Quality Assurance Team will not review the responses to this section.

**Comments**

1. Regional guidance recommends the use of a document control header for QAPPs and FSPs. Document control headers consist of identification of each page of the document with a section number, revision number, revision date, and page number.

2. Table 2-12/29/11 references a "biocide pill" to be used as a preservative in certain analyses. Although its intended use is obvious, the chemical involved may need to be duplicated by another laboratory at a later date. Please identify the chemical makeup of the pill.

3. The title page identifies Richard Fetzer as the OSC for this project; other paperwork identifies Richard Rupert. Please rectify this disagreement.

If you have any questions or comments, please contact me at (410) 305-2631.